THE POPLITEAL TECHNIQUE AFTER A FAILED ANTEGRADE APPROACH FOR ANGIOPLASTY OF FEMORAL ARTERY OCCLUSIONS.

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Angioplasy (PTA) using the percutaneous popliteal approach was utilized in 25 patients (PTS) (19 men; mean age: 64 years) to recanalize 28 occluded superficial femoral arteries (SFA) which were unsuccessful using the antegrade approach because of flush SFA origin occlusion (70%) or inability to maintain the guide wire in the true lumen (30%). All PTS had claudication; 3 had rest pain. In 16 cases (57%), PTA was used with thermal laser assistance (laser probe, Trimedyne). Occlusion length varied between 1-35 cm (mean: 23 cm): 3 lesions were <10 cm (Group 1); 8, between 10-20 cm (Group 2); and, 17 were >20 cm (Group 3). An angiographic success (<50% residual stenosis with good antegrade flow) was obtained in 19/28 lesions (68%): 9/11 (82%), in Groups 1 and 2, and 10/17 (56%) in Group 3. Complications included: perforation (without sequelae) in 5 PTS and a popliteal hematoma in 1 patient. One patient, after popliteal approach PTA for limb salvage, nevertheless, underwent successful emergency vascular surgery. No worsening limb ischemia resulted for any popliteal approach attempt. At discharge, 17/25 PTS (68%) were clinically improved after utilizing the popliteal approach.

Conclusions: SFA occlusions, despite failed antegrade recanalization because of a (1) flush SFA origin occlusion or (2) inability to cross the vessel segment (both of which previously would have precluded PTA), can be safely recanalized in two-thirds of PTS utilizing the popliteal approach.

QUALITATIVE EXERCISE SEISMOCARDIOGRAPHY FOR DETECTION OF MODERATE AND SEVERE MULTIVESSEL CORONARY ARTERY DISEASE

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Seismocardiography (SCG) is a new noninvasive test, based on techniques from the field of seismology, that analyzes the compression waves transmitted from the heart during its movement. We previously reported in a small group of patients (pts) that a change in SCG after exercise was more sensitive for detection of moderate coronary artery stenosis than electrocardiography (ECG). We have now recorded exercise SCG and ECG in 505 pts. Of these, 112 had an angiogram performed within 6 months. Of these, 95 had satisfactory exercise ECG and SCG data. Their age was 59 ± 10 years, 74 were males, and 71 had coronary lesions ≥ 50%. ECGs and SCGs were each read by two blinded observers for exercise-induced ST depression or an exercise-induced qualitative change in the SCG waves. Differences between readers were resolved by mutual agreement prior to unblinding. The following data were obtained.

		ECG	SCG	P
Sensitivity:				
Moderate	(≥ 50%) lesion - 1, 2 or 3 vessels	62%	79%	< 0.05*
Severe	(≥ 90%) lesion - 1, 2 or 3 vessels	60%	77%	< 0.05
	≥ 90% lesion - 1 vessel	53%	70%	0.06
	≥ 90% lesion - 2 or 3 vessels	71%	88%	0.09
Specificity:		42%	50%	

*overall accuracy including specificity (McNemar's test used for all p values)

In 59 pts with no prior MI, sensitivity (50% lesion) was 74% for ECG and 85% for SCG, and specificity was 35% for ECG and 50% for SCG (p = 0.06). The mean + predictive value (PV) (50% lesion) by all readers was 76% for ECG, 80% for SCG, and 82% for ECG + SCG when both agreed. The negative PV was 28% for ECG, 42% for SCG, and 49% when both agreed. Qualitative exercise seismocardiography was more accurate than electrocardiography for detection of coronary artery stenosis in this study. This was true for severe, multivessel disease as well as for moderate disease. This appeared to be true in the presence or absence of prior myocardial infarction. The predictive value of the two tests in combination was useful.

Monday, March 19, 1990
Poster Displayed: 2:00PM–5:00PM
Author Present: 4:00PM–5:00PM
Hall C, New Orleans Convention Center
Exercise Testing: Prognosis, Diagnosis and Physiology

RISK FACTORS FOR EXERCISE INDUCED ECG ISCHEMIA IN HEALTHY MIDDLE-AGED MEN.

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Exercise induced silent ECG ischemia is present in approximately 5 to 10% of the male population above the age of 30. To study its relation to coronary risk factors, we analyzed data from 3727 healthy males in the Lipid Research Clinics Prevalence Study, mean age 43 (30-79) yrs. At baseline, all subjects underwent a target heart rate limited treadmill exercise test. Heart rate, blood pressure and a 12 lead ECG was recorded. Conventional risk factors were also assessed. A painless ischemic ECG response, (ECG-SI), a ≥ 1 mm horizontal or > 10 uVsec computer measured ST depression was present in 5.3% of the subjects. Using logistic regression, ECG-SI was associated with coronary risk factors such as LDL-cholesterol (p=0.0004), resting systolic blood pressure (p=0.01) and age (p=0.006), which suggests that it may represent a true ischemic response in most subjects. The combined relative risk of ECG-SI for subjects being 2 SD (in brackets) above average with respect to LDL-cholesterol (79 mg/dl), systolic blood pressure (32 mm Hg) and age (19 yr) was 2.3 (95% confidence interval 1.6 to 4.3). Conclusion: ECG-SI is significantly associated with coronary risk factors, and therefore it is more likely to represent a true ischemic response. Three basic risk factors can reveal subjects at increased risk of ECG-SI.

INABILITY OF ELECTROCARDIOGRAPHIC CHANGES AND CHEST PAIN DURING INFUSION OF ADENOSINE TO PREDICT THE PRESENCE OF CORONARY DISEASE.

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The diagnosis of coronary disease (CAD) in standard exercise tolerance tests is indicated by the production of typical 12-lead ECG changes and/or characteristic anginal chest pain. We evaluated the ability of adenosine infusion to produce ECG changes and chest pain in pts with CAD and in normal volunteers participating in a study of adenosine thallium imaging. Adenosine was administered to 26 pts with angiographically documented CAD and 41 controls (ctls) by intravenous infusion of 140 mcg/kg/min for 6 minutes with continuous ECG monitoring. All subjects also underwent standard symptom-limited exercise tolerance tests.

ECG Results:

	Normal	Nonspecific	Abnormal	
Pts, Adenosine:	18	8	0	
Pts, Exercise:	4	16	6	p <0.01
Ctls, Adenosine:	40	0	1	
Ctls, Exercise:	40	1	0	p >0.3

Fifteen pts and 22 ctls reported chest discomfort ranging from mild in 5 pts and 15 ctls to severe in 5 pts and 2 ctls. There was no difference in the occurence of chest pain between the two groups (p >0.7). We conclude that chest pain and ECG changes during adenosine infusion can not support or deny the presence of CAD. The diagnostic utility of thallium imaging after adenosine infusion will rest entirely upon the images produced.